

I. Amendments to the Specification

Please replace paragraph [0001] with the following new paragraph:

[0001] This application is a continuation of U.S. Application No. 09/845,951 filed April 30, 2001, which issued as U.S. Patent No. 6,663,599 on December 16, 2003, which is a continuation of U.S. Application No. 08/967,755, filed November 4, 1997, now abandoned, which is a continuation of U.S. Application No. 08/547,441, filed October 24, 1995, now abandoned, which is a continuation-in-part of U.S. Application No. 08/467,843, filed June 6, 1995, now abandoned, which is a continuation of U.S. Application No. 08/196,846, filed February 15, 1994, now abandoned, which is a continuation-in-part of U.S. Application No. 07/879,430, filed May 6, 1992, now abandoned.

Please replace paragraph [0015] with the following new paragraph:

[0015] FIG. 2 is an exploded partially cut-away view of the embodiment of FIG. 1.

Please replace paragraph [0019] with the following new paragraph:

[0019] FIG. 6 is a ~~bottom~~ side partially cut-away view of the valve body shown in FIG. 5.

Please replace paragraph [0027] with the following new paragraph:

[0027] FIG. 14 is a ~~bottom~~ side partially cut-away view of the valve body shown in FIG. 13.

Please replace paragraph [0032] with the following new paragraph:

[0032] FIG. 18 is a ~~bottom~~ side partially cut-away view of the valve body shown in FIG. 17.

Please replace paragraph [0045] with the following new paragraph:

[0045] As with valve body 1, valve body 1' is oblong in shape and has a height dimension ~~H₁~~ H₂ which is greater than the height dimension H₁ of recess 18 of FIG. 1. Therefore, valve body 1' must additionally be compressed in the direction of arrows 8 in order to be received within recess 18. Valve body 1' includes a pair of opposing planar faces 6' which are separated by a peripheral edge 5'. A hole or cylindrical recess 3' is made through one of the faces and extends partially through the valve body as shown in FIG. 14. The hole 3' may be formed by molding during the process of forming the disk or punched, cut or drilled in a separate operation. A slit 2' is made through the other face and extends partially through the valve body intersecting hole 3' within the valve body. Additionally, a raised ring 7' on the top surface of the valve provides a lead-in to the hole 3' of the valve body 1'. As such, the raised ring 7' makes it easier to place very small diameter devices through the valve. The extra material around the hole 3' additionally makes the valve less likely to tear.

Please replace paragraph [0051] with the following new paragraph:

[0051] As with the previous embodiments of the invention, before being compressed, valve body 1' has a height dimension H_2 , which is greater than height dimension H_1 of recess 18 shown in FIGS. 1 and 2. So that the compression forces on valve body 1' are directed only perpendicularly to slit 2', valve body 1' has a width dimension W_2 , which is less than the width dimension W_1 of recess 18 of FIG. 1. Planar portions 4' allow valve body 1' to expand in its width dimension without interacting with the recess when it is compressed and received within the recess 18 of FIG. 1.

Please replace paragraph [0057] with the following new paragraph:

[0057] Further, valve body 1" (including raised ring 7' and internal ring 8") is preferably made from silicon rubber or another elastomer having a Durometer hardness (Shore A scale) anywhere between 20A and 90A. Evaluations were conducted on valve bodies differing in Durometer (Shore A scale from 29A to 51A) and diameter. Other physical characteristics measured were weight and thickness. Insertion force measurements and leakage were then conducted on the valves after they were built up in cap and body assembly. The optimal scenario was determined to be where the insertion force (measured by the amount of force needed to insert a an 8 Fr. dilator across the valve at a constant rate) is low, and the leakage nonexistent. An Analysis of Variance was conducted on the physical characteristics, and it was found that the most statistically significant factor effecting the insertion force was Durometer. It was

found that the higher the Shore A Scale number, the greater was the insertion force.

Please replace paragraph [0061] with the following new paragraph:

[0061] In the present embodiment, the raised ring 7" is centered around the hole 3". Additionally, as can be seen more clearly in FIG. 19A, the inner wall 9" of the raised ring 7" is sloped from the top of the raised ring 7" down to the face 8a" of the internal ring 8". An angle θ can be measured between a plane parallel to the face 8a" and the inner wall 9". In the above mentioned particular embodiment angle θ is ~~45.degree~~ 45 degrees.

Please replace paragraph [0068] with the following new paragraph:

[0068] The catheter 57 is then introduced through the opening in cap 17 and passes through valve body 1, 1' or 1". Catheter 57 is guided through passage 11 and flexible tubing 35 by the tapered surfaces 71 and 72. The catheter finally passes into lumen 62 of the blood vessel. Hole 3, 3' or 3" (and in the case of valve bodies 1' and 1", raised rings 7' and 7" and further in the case[[-]] of valve body 1", internal ring 8") forms a seal around the exterior wall of catheter 57 and prevents blood loss through hole 70 in the cap. Passage 11 is constantly flushed by a flow of heparin saline solution introduced through the port 45 and tubing 46 in order to prevent clotting. When catheter 57 has been maneuvered into position, radiopaque fluid is injected through the catheter and X-ray photographs may be taken of the radiopaque configuration of the organ

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being studied.



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